ABSTRACT OF THE INVENTION

Drosophila melanogaster and *C. elegans* that have been genetically modified to express or mis-express proteins involved in the sterol regulatory element binding protein (SREBP) pathway are described. These genetically modified animal models have identifiable phenotypes that make them useful in assays for studying lipid metabolism, other genes implicated in lipid metabolism, and compounds capable of modulating lipid metabolism pathways. Methods for studying lipid metabolism in living nematodes using fluorescently-labelled fatty acid conjugates, such BODIPY™ fatty acid conjugates, are also described. Novel SREBP pathway nucleic acid and protein sequences are also described.

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